LE-580FX

User's Manual

Version 2

April, 2008

INTRODUCTION

Thank you for your purchase of LINE EYE analyzer. To use it correctly, you are advised to read and understand this instruction manual thoroughly. Keep this together with the warranty. If you encounter any problems, you will find helpful information in this manual.

NOTICE

a) It is prohibited to reprint or duplicate any part or the whole of this instruction manual without prior permission from LINEEYE.
b) The contents of this instruction manual and specifications of the product is subject to change without any notice.
c) This instruction manual has been designed and edited with great care to give you all necessary information. If you have any questions, feel free to direct your inquiries to LINEEYE CO., LTD.
d) LINEEYE shall not be liable for any damages resulting from the use of this product. Furthermore, LINEEYE makes no guarantee if data disappears, or the recorded data corrupts while using this product.

USE LIMITATION

This product has been developed for the purpose of using as an analyzer only, and has not been developed for the use that needs exclusively high reliability and safety; aerospace apparatus, trunk communication apparatus, nuclear control apparatus, medical apparatus related with life maintenance etc. Also, this product does not warrant the use for those purposes. If you use for those purposes, please consider the safety measures in terms of fail-safe etc.

Safety Information

Read this first ! !
This Safety Information includes the important information in order to not only learn the right way to use the analyzer, but also prevent you from causing damage to other people and property. Before using, please read the following WARNING and CAUTION.

WARNING: Improper handling poses a risk of causing death or serious injury.

CAUTION: Improper handling poses a risk of causing injury*1 or damage to the product and property*2.

*1: “Injury” indicates injury, burn, an electric shock, or the like which does not require hospitalization or hospital visit for over a long period.

*2: “Damage to the product and property” indicates damage expansion related to a house, a building, furniture, apparatus, livestock or a pet.

WARNING

Do not disassemble or modify.
This may result in fire, an electric shock and/or unit malfunction.

Stop using the analyzer immediately when smells emanate from itself.
Continuous use may result in an electric shock, a burn and/or fire.

Keep the product away from water.
Failure to do so may result in the heat generation, an electric shock and/or unit malfunction.

Do not use deteriorated cables (damage etc.).
This may result in the heat generation and fire.

Do not use in the place which generates inflammable gas etc.
This may result fire.

CAUTION

Do not use and keep this product in the following places:
a)The places exposed to the direct rays of the sun.
b)The places with the humidity and temperature exceeding the tolerance level, and with a rapid temperature change.
c)The places with much dust and moisture.
d)The places near the objects which generate heat (the heater etc.).

Using in these places may result unit malfunction and /or injury.

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1. Copyright
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2. Grant of License
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   Besides LINEEYE shall not be liable for any damages arising from the product or the medium.

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7. Support
   LINEEYE supports functions, operation and only the problem on this software.

8. Notice
   Any matter not specified in this agreement will be governed by and constructed in accordance with copy right law and related laws.

LINEEYE CO., LTD.

Before Using the product

LE-580FX is a compact network tool which has TAP mode and PG mode. With TAP mode, you can capture/monitor full-duplex data on 10/100 Base-TX Network via USB port. With Packet Generator (PG) mode, you can generate traffic of max. at 100Mbps line-speed.

Composition

When you unpack the product, please make sure of the following:

Analyzer	: 1
Utility CD	: 1
USB 2Way Cable	: 1
User's Manual	: 1 (This book)
Warranty	: 1

a) Please contact LINEEYE or its distributors or us if you find any damage to the product caused by transportation or any insufficient part.
b) Please keep the box carefully and use it when sending the product back to us for repair etc.

Utility CD

This product contains the analysis software, the driver, and the latest manuals.

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1.Installation and uninstallation

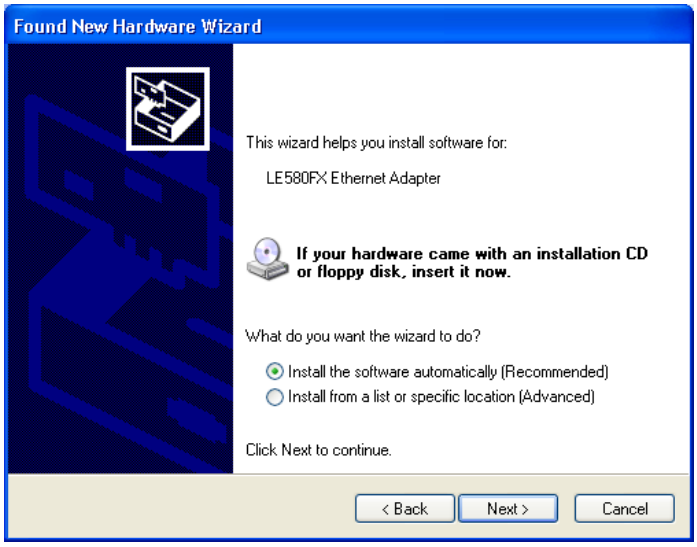
1.1 Driver Installation

When you connect LE-580FX to USB port of host PC at the first time, you will be asked to install the driver.

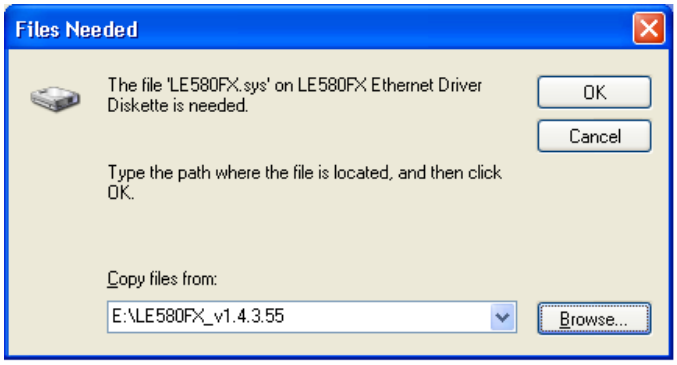
Please follow the instruction.

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
Read our privacy policy
Can Windows connect to Windows Update to search for software?
Yes, this time only
Yes, now and every time I connect a device
No, not this time
Click Next to continue.
< Back
Next >
Cancel

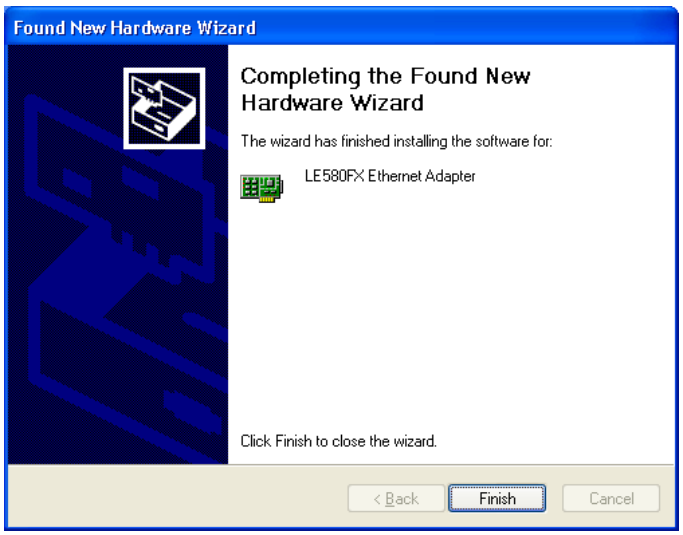
Click **Next** to continue.


Found New Hardware Wizard
This wizard helps you install software for:
LE580FX Ethernet Adapter
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

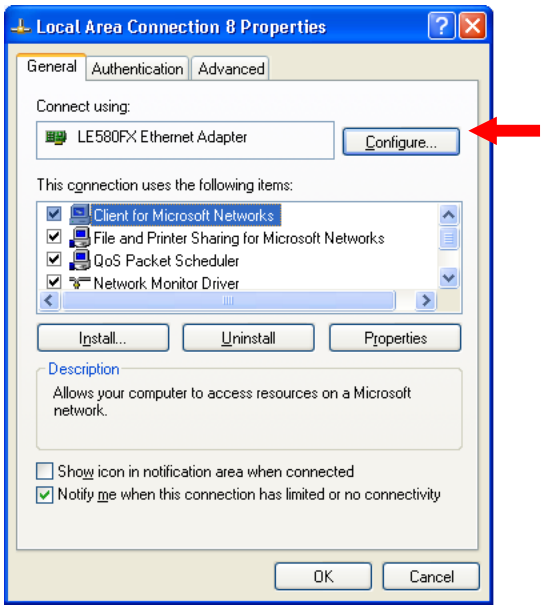
Choose **Install the software automatically… (Recommended)** and click **Next** to continue.



Click **Browse** to choose the proper driver location to locate LE-580FX device driver.



Click **Finish** to complete installation and exit Wizard.



The Local Area Connection Properties window shows the LE-580FX Ethernet Adapter has been successfully installed.

1.2 Install the application software

Install the LE-580FX Window(basic software). Installation will start when you invoke "LE-580FX window Setup. exe". At the same time WinPcap (packet driver for Windows) will be installed.

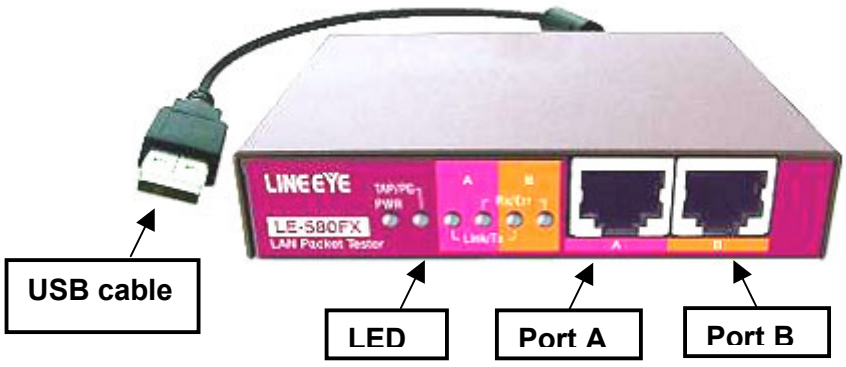
*1) If the system is installed the firewall/anti-virus software, traffic from LE-580FX to host PC may be blocked. Please close that software if blockage occurs.

*2) Software for LE-580FX works at WinPcap Ver4.0.2. When you install the LE-580FX Window, WinPcap Ver4.0.2 will also be installed. If you have different version of WinPcap, please uninstall it. Then install the software for LE-580FX.

1.3 Uninstall the application software

Open the "Add or Remove Programs" in the Control Panel for WindowsXP and Windows2000. Choose "LE-580FX Window" and then click "Change/Remove" for WindowsXP, or "Remove" for Windows2000 to uninstall.

2. LED Description



USB cable : to connect with PC.

Port A : RJ-45 connector to connect with test object.

Port B : RJ-45 connector to connect with test object.

LED Discription:

Item	Color	Description
Power	Green	Power on
TAP/PG *2	Green	TAP mode *1
	Amber	PG mode
	Blinking Green	NWay fails (TAP mode)
Lk/Tx	Green	Link under 100Full/Half duplex
	Amber	Link under 10Full/Half duplex
	Blinking Green	Transmit traffic at 100Full/Half duplex
	Blinking Amber	Transmit traffic at 10Full/Half duplex
Rx/Err	Green *3	Full duplex
	Amber *3	Half duplex
	Blinking Green	Receive traffic
	Blinking Amber	Receive traffic with CRC error

*1 :TAP mode is set as default.

*2 :When either one of Port A or B is linked, the LED of TAP/PG will be Green (TAP mode) or Amber (PG mode).

*3 :In the TAP mode, when NWay fails, the LED of TAP/PG will be blinking, the speed status will be shown through the LED of Lk/Tx, and the duplex status will be shown through the LED of Rx/Err.

3. Specification and Environment

3.1 Specification

Measurement port	10Base-T/100Base-TX Ethernet 2 port (RJ-45)
PC connection port	USB2.0 (High speed)
LED	Display for power on/off, TAP/PG, Link/Tx of Port A, Rx/Err of Port A, Link/Tx of Port B, Rx/Err of Port B
Power	USB bus power (max. 3W)
Temperature	0 to 40 (operation), -10 to 50 (storage)
Humidity	below 85%RH(no condensation)
Dimension and Weight	95mm x 77mm x 20mm, 210g
Accessories	Utility CD, USB 2way cable *1, warranty, manual

*1: Use for extension or for power supply.

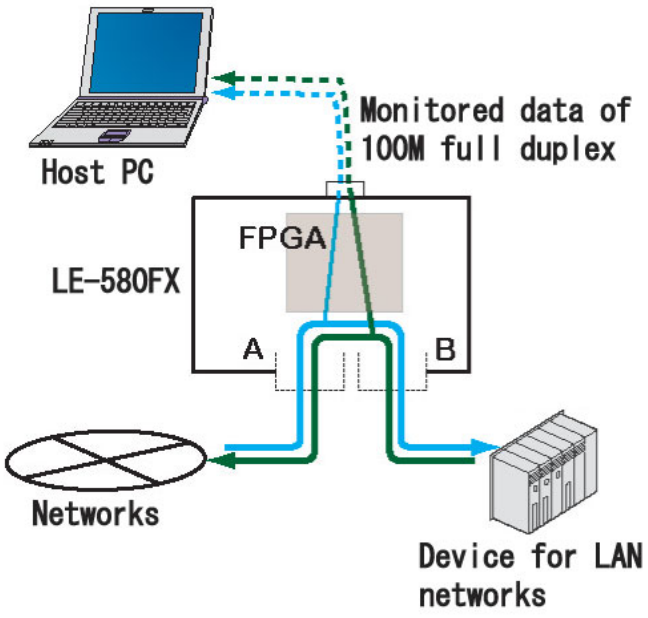
3.2. Environment

PC/AT compatible (DOS/V) with USB2.0 port
RAM : 256MB or more (recommended).
CPU : Pentium4, 1.6GHz or more (recommended)
HDD : 1 GB or more (recommended)
OS : Windows2000 / XP

4. Test Connection Setup

4.1 TAP Mode (monitor and capture)

For TAP mode, choose the target link to monitor and insert LE-580FX into it. LE-580FX has Ethernet counters to collect associated traffic information and send to host PC via USB. Bi-directional capture function is also supported. Please note, in this mode, data is captured in two directions: PortA to PortB or PortB to PortA.



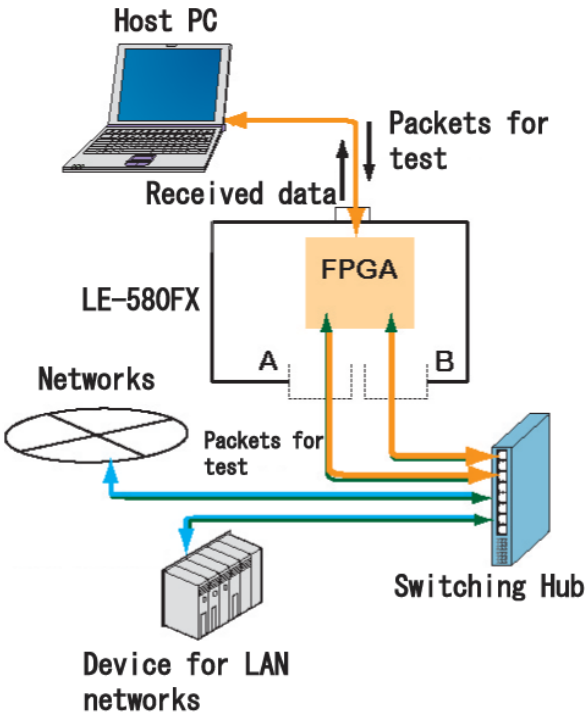
4.2 Packet Generation Mode

For Packet Generation (PG) mode, choose the target DUT (Device under Test) or NUT (Network under Test) and connect one or two ports of LE-580FX to it. Functions of packet generation and packet analysis can be configured individually in each port.

Please note, in this mode, data is delivered to two separate ports.

Note: TAP mode is set as default if LE-580FX is not working as PG mode or QoS.

Please make sure that LE-580FX is not in loop connection (It will block the network).



4.3 USB 2way cable

If LE-580FX is not working stable, it may be because of the lack of bus power. Please use the USB 2way cable for power steadiness.

<Steps>

1. Insert 2way cable (male) into 2 USB ports of PC.
2. Insert 2way cable (female) into USB port of LE-580FX.

5. Application Software

There are two application software, LE-580FX Window and LE-580FX QoS in the LE-580FX. LE-580FX Window is for controlling LE-580FX. And LE-580FX QoS is for testing QoS for layer 2.

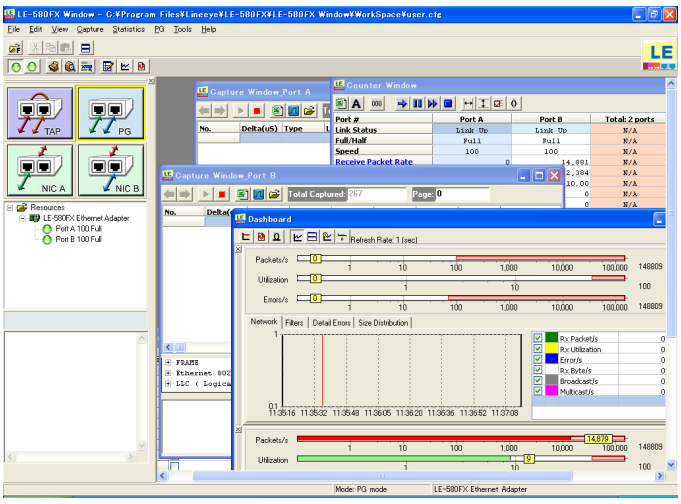
5.1 LE-580FX window

In the LE-580FX Window, you can switch LE-580FX into TAP or PG mode. With PG mode, you can generate traffic at line-speed. With TAP mode, you can analysis various networks.

5.1.1 Function Tree

File	**=> Load Default Workspace**		: Opens default workspace configuration information.
	=> Load Monitor Log		: Loads monitored log(statistic information).
	=> Exit		: Exits LE-580FX Window.
Edit	**=> Cut**		: Cuts text.
	=> Copy		: Copies text.
	=> Paste		: Pastes text cut or copied.
View	**=> Alarm Info**		: Reveals alarm information based on threshold
	=> Control Window		: Invokes main control window.
Capture	**=> Capture Setup**	**=> Port A/B**	: Sets up capture condition.
	=> Capture Window	**=> Port A/B(PG)**	: Provides start/stop/view capture data
	=> Capture Option		: Selects Ethereal or Wireshark to open the captured file (“ .enc“ file).
Statistics	**=> Meter**	**=> Dashboard**	: Provides real time traffic information update.
		=> Threshold	: Provides traffic threshold configuration.
	=> Counter window		: Provides packet related counter statistics.
PG	**=> Matrix setup**	**=> Port A/B**	: Sets up TX packet information.
	=> Media Type	**=> Port A/B**	: Changes speed/duplex mode on port A/B.
	=> X-trailer	**=> Port A/B**	: Sets up X-trailer for Port A/B.
	=> Flow Control	**=> Port A/B**	: Switches flow control on/off.
	=> Rx BERT	**=> Port A/B**	: Sets up BERT of Rx for Port A/B(on/off).
Tools	**=> IFG converter**		: Provides Inter frame gap calculator for TX IFG.
	=> Device Info		: Reveals LE-580FX device information.
	=> FPGA Download		: Makes version up for FPGA
Help	**=> About**		: Provides information on the current version of LE-580FX.

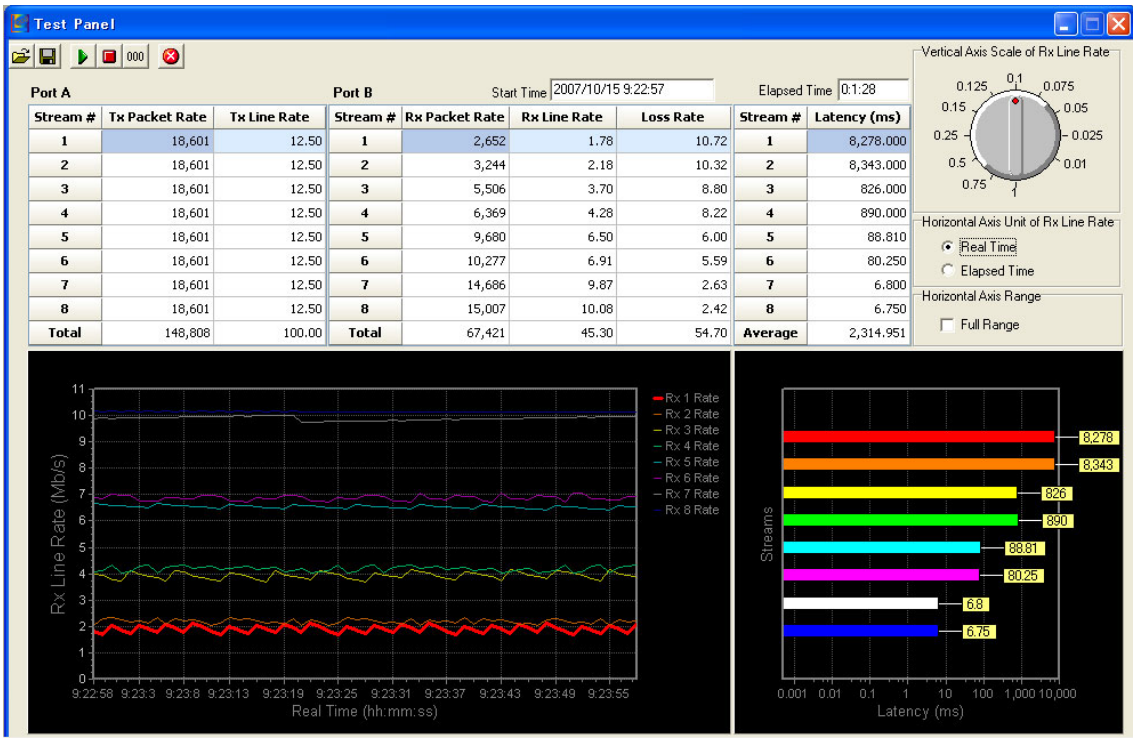
*Please read the PDF document in the utility CD for more information about LE-580FX Window.



5.2 LE-580FX QoS

LE-580FX QoS turns LE-580FX into an easy-use tester for Layer 2.

(QoS: Quality of Servise)



Stream #	Tx Packet Rate	Tx Line Rate
1	18,601	12.50
2	18,601	12.50
3	18,601	12.50
4	18,601	12.50
5	18,601	12.50
6	18,601	12.50
7	18,601	12.50
8	18,601	12.50
Total	148,808	100.00

Stream #	Rx Packet Rate	Rx Line Rate	Loss Rate
1	2,652	1.78	10.72
2	3,244	2.18	10.32
3	5,506	3.70	8.80
4	6,369	4.28	8.22
5	9,680	6.50	6.00
6	10,277	6.91	5.59
7	14,686	9.87	2.63
8	15,007	10.08	2.42
Total	67,421	45.30	54.70

Stream #	Latency (ms)
1	8,278.000
2	8,343.000
3	826.000
4	890.000
5	88.810
6	80.250
7	6.800
8	6.750
Average	2,314.951

5.2.1 Function Tree

File	**=> Load**	**: Display saved log file**
	=> Exit	**: Exit LE-580FX QoS**
Configuration	**=> Set Test Configuration**	**: Display the window for test configuration**
	=> Set Chart Color	**: Display the window for chart color**
Test	**=> Test Panel**	**: Display the result in table or chart**
	=> Detailed Counter	**: Display the detailed statistic information for 2 ports**
Help	**=> Help**	**: for future upgrade**
	=> About	**: display the version of LE-580FX (software/hardware)**

*Please read the PDF document in the utility CD for more information about LE-580FX QoS.

6 Use of LE-580FX Window

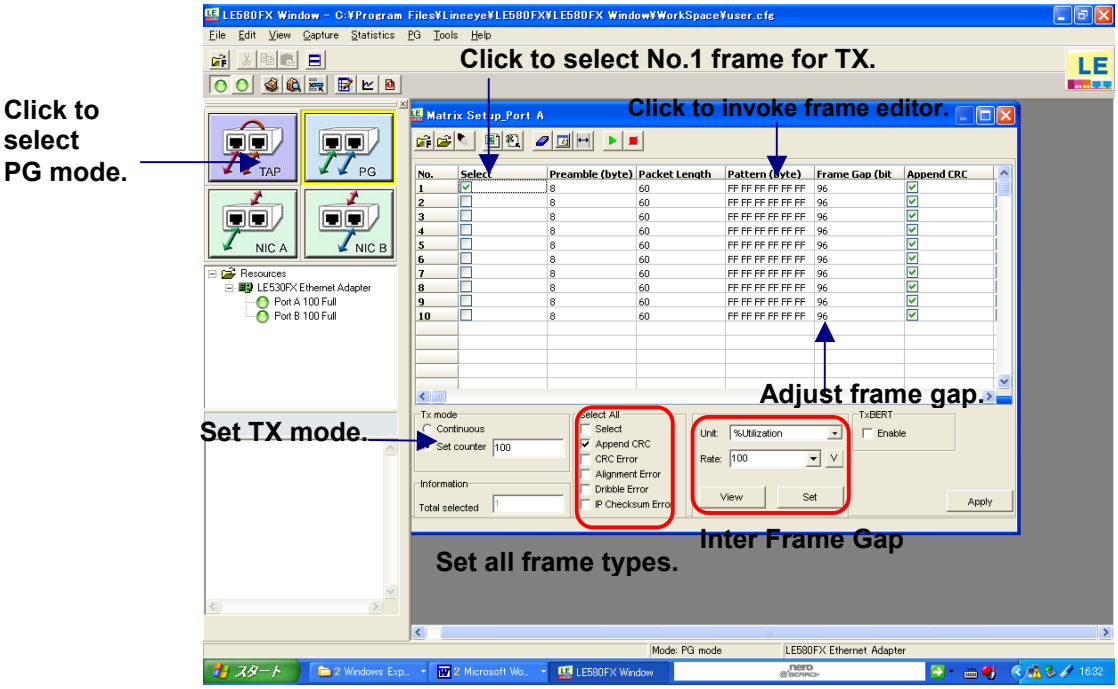
6.1 Packet Generator (PG Mode)

Packet Generator mode is useful for Network test because it generates packet streams and error frames.

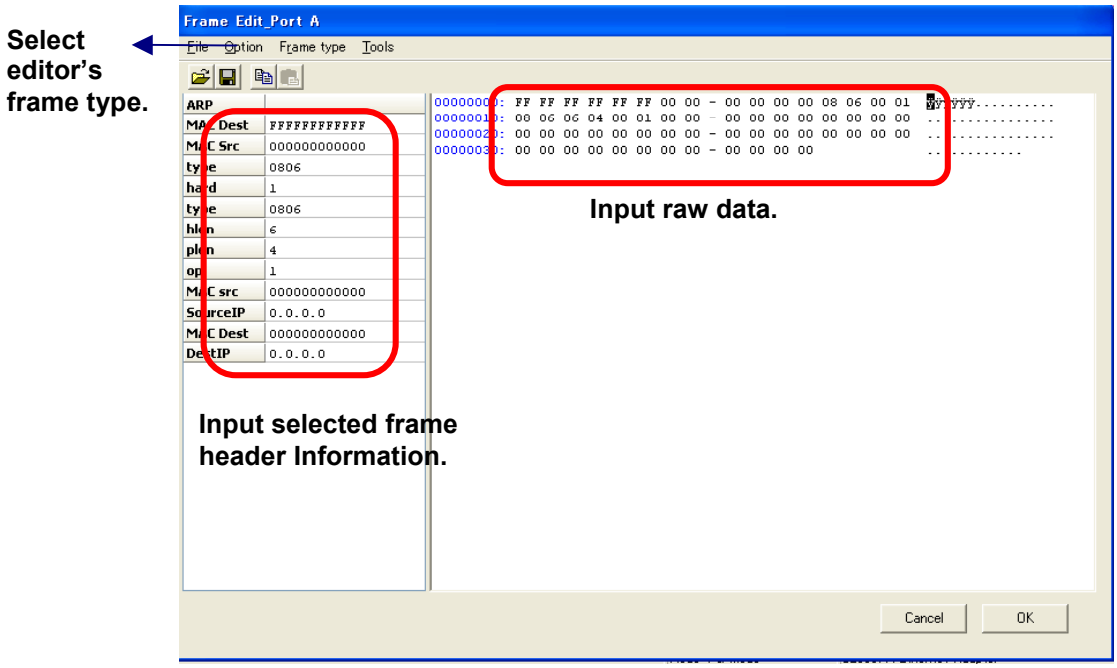
<Example of setting>
Set LE-580FX to generate 10% utilization rate and 64bytes ARP packet traffic at port A. Receive the traffic at port B.

Step 1: Select PG mode from the Control Window.

Step 2: Select PG => Matrix Setup => Port A to bring out Matrix Setup window for port A. Click Pattern (Byte) for the Frame No.1, and then frame editor button will appear. Invoke frame editor to configure the packet content. Click “OK”.


Click to select PG mode.
Click to select No.1 frame for TX.
Click to invoke frame editor.
Adjust frame gap.
Set TX mode.
Inter Frame Gap
Set all frame types.

Step 3: Select ARP in frame type. Enter required information, such as destination MAC, source MAC, etc.
*Please refer to the protocol specification for more detail about the protocols.



Step 4: Set Inter Frame Gap (IFG). Set utilization rate to be 10%. Frame gap, "6144" bit times in 100M mode, will be shown in the Matrix Setup window.

Step 5: All frame configuration setup is completed. Select "Tx mode" to be "Continuous" and click start button (green arrow) to start transmitting the target traffic.

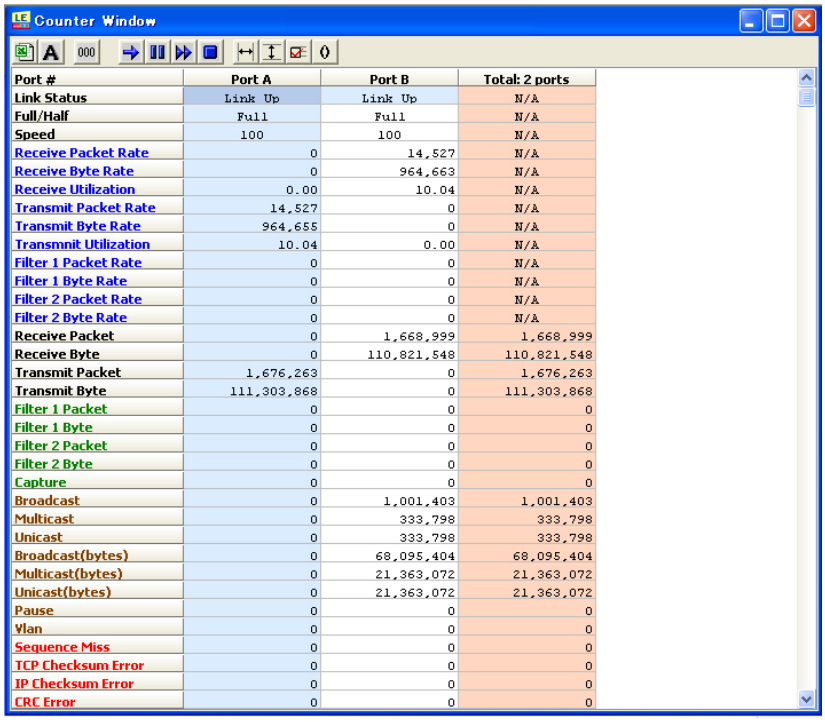
Step 6: Select Statistic => Meter => Dashboard. Select Statistic => Counter window to show performance information of port A (TX side) and port B (RX side).

Step 7: Click the Stop button (red square) in the Matrix Setup Window to stop the traffic. (if you set the number of transmitting packets in the Tx mode, it automatically stops after finishing the transmission)
*Warning: Improper test traffic may cause the network blockage.

<Hint>
Matrix setup: User may generate up to 128 packet streams per one port. User may configure packet length, content, and IPG (inter packet gap), and attach various errors. Transmit performance will be shown on the Dashboard or Counter window.

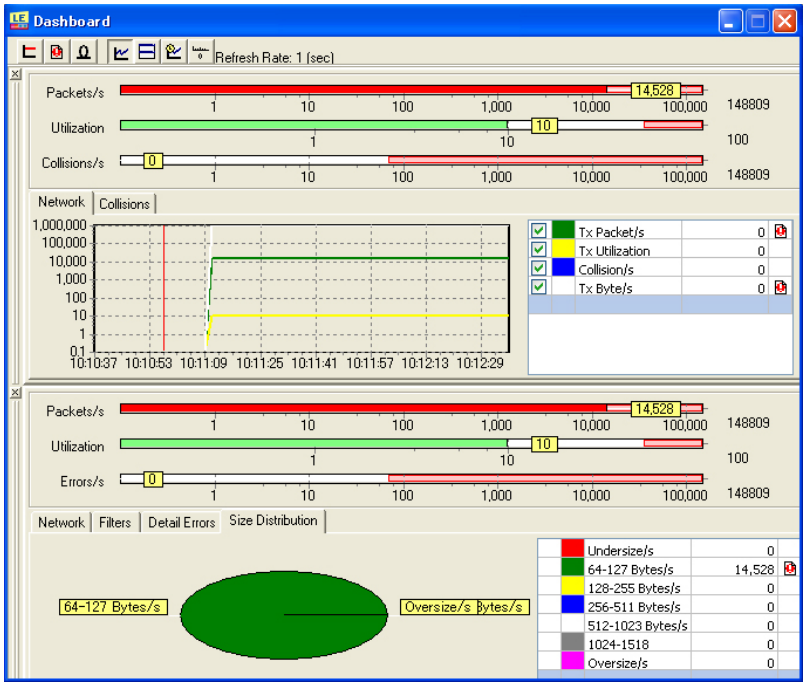
Frame editor: User may edit packet content through frame editor embedded in Matrix Setup window that provides predefined packet type: IPv4, TCP, UDP, ICMP, IGMP, IPX, and ARP with optional VLAN Tag/MPLS.

IFG calculator: Inter packet gap between packets are adjusted in term of bit time. IFG calculator is useful to calculate the utilization rate of transmission.



Port #	Port A	Port B	Total: 2 ports
Link Status	Link Up	Link Up	N/A
Full/Half	Full	Full	N/A
Speed	100	100	N/A
Receive Packet Rate	0	14,527	N/A
Receive Byte Rate	0	964,663	N/A
Receive Utilization	0.00	10.04	N/A
Transmit Packet Rate	14,527	0	N/A
Transmit Byte Rate	964,655	0	N/A
Transmnit Utilization	10.04	0.00	N/A
Filter 1 Packet Rate	0	0	N/A
Filter 1 Byte Rate	0	0	N/A
Filter 2 Packet Rate	0	0	N/A
Filter 2 Byte Rate	0	0	N/A
Receive Packet	0	1,668,999	1,668,999
Receive Byte	0	110,821,548	110,821,548
Transmit Packet	1,676,263	0	1,676,263
Transmit Byte	111,303,868	0	111,303,868
Filter 1 Packet	0	0	0
Filter 1 Byte	0	0	0
Filter 2 Packet	0	0	0
Filter 2 Byte	0	0	0
Capture	0	0	0
Broadcast	0	1,001,403	1,001,403
Multicast	0	333,798	333,798
Unicast	0	333,798	333,798
Broadcast(bytes)	0	68,095,404	68,095,404
Multicast(bytes)	0	21,363,072	21,363,072
Unicast(bytes)	0	21,363,072	21,363,072
Pause	0	0	0
Vlan	0	0	0
Sequence Miss	0	0	0
TCP Checksum Error	0	0	0
IP Checksum Error	0	0	0
CRC Error	0	0	0

Counter



Dashboard

6.2 Network Monitor (TAP Mode)

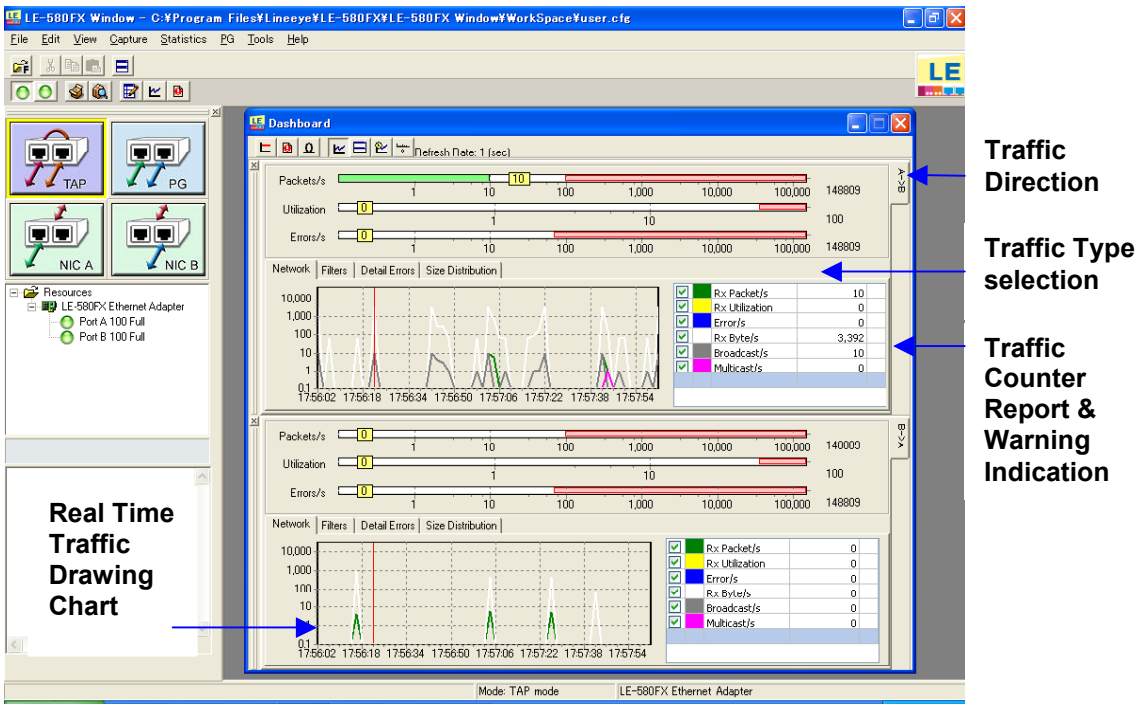
When connecting LE-580FX in TAP mode, LE-580FX hardware will be act as a “TAP” device to forward the link traffic into the host PC. You can invoke LE-580FX Window to see the performance of the link, or capture certain traffic by LE-580FX capture function.

<Important>
Please be aware that LE-580FX does not have the fail-safe function.
Network will be blocked by the power shortage.

<Example of setting>
To monitor a FTP link between two stations

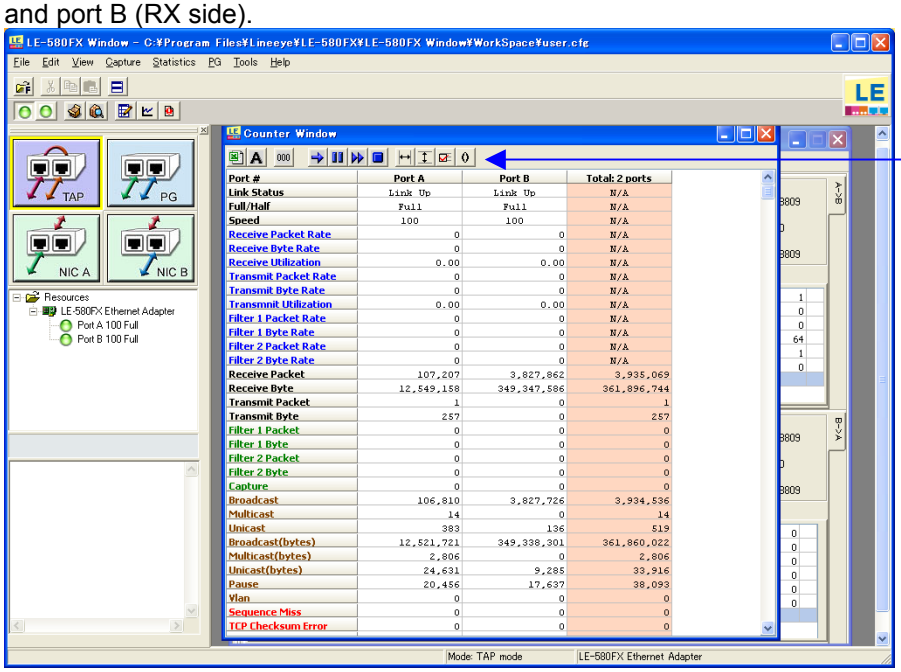
Step 1: Insert LE-580FX between the target monitor link. If LE-580FX is in default mode(TAP), no mode change needed, otherwise switch to TAP mode

Step 2: Real-Time Report Chart. Select Statistic => Meter => Dashboard to show the performance information of both port A(TX side) and port B(RX side) in real time.



Dashboard

Step 3: Select Statistic => Counter window to show the counter information of port A (TX side) and port B (RX side).


LE-580FX Window - C:¥Program Files¥Lineeye¥LE-580FX¥LE-580FX Window¥WorkSpace¥user.cfg
File Edit View Capture Statistics PG Tools Help
TAP
PG
NIC A
NIC B
Resources
LE-580FX Ethernet Adapter
Port A 100 Full
Port B 100 Full
Counter Window
Port # | Port A | Port B | Total: 2 ports
Link Status | Link Up | Link Up | N/A
Full/Half | Full | Full | N/A
Speed | 100 | 100 | N/A
Receive Packet Rate | 0 | 0 | N/A
Receive Byte Rate | 0 | 0 | N/A
Receive Utilization | 0.00 | 0.00 | N/A
Transmit Packet Rate | 0 | 0 | N/A
Transmit Byte Rate | 0 | 0 | N/A
Transmnit Utilization | 0.00 | 0.00 | N/A
Filter 1 Packet Rate | 0 | 0 | N/A
Filter 1 Byte Rate | 0 | 0 | N/A
Filter 2 Packet Rate | 0 | 0 | N/A
Filter 2 Byte Rate | 0 | 0 | N/A
Receive Packet | 107,207 | 3,827,862 | 3,935,069
Receive Byte | 12,549,158 | 349,347,586 | 361,896,744
Transmit Packet | 1 | 0 | 1
Transmit Byte | 257 | 0 | 257
Filter 1 Packet | 0 | 0 | 0
Filter 1 Byte | 0 | 0 | 0
Filter 2 Packet | 0 | 0 | 0
Filter 2 Byte | 0 | 0 | 0
Capture | 0 | 0 | 0
Broadcast | 106,810 | 3,827,726 | 3,934,536
Multicast | 14 | 0 | 14
Unicast | 383 | 136 | 519
Broadcast(bytes) | 12,521,721 | 349,338,301 | 361,860,022
Multicast(bytes) | 2,806 | 0 | 2,806
Unicast(bytes) | 24,631 | 9,285 | 33,916
Pause | 20,456 | 17,637 | 38,093
Vlan | 0 | 0 | 0
Sequence Miss | 0 | 0 | 0
TCP Checksum Error | 0 | 0 | 0
Mode: TAP mode
LE-580FX Ethernet Adapter

Control bar to clear/start/stop counter and adjust counter alignment/size.

Counter Window

<Hint: Counter information provided by LE-580FX.>

Rate Counter: TX Packet Rate/Bytes Rate/Utilization. RX Packet Rate/Bytes Rate/Utilization. Filter 1 Packet Rate/Byte Rate. Filter 2 Packet Rate/Byte Rate.

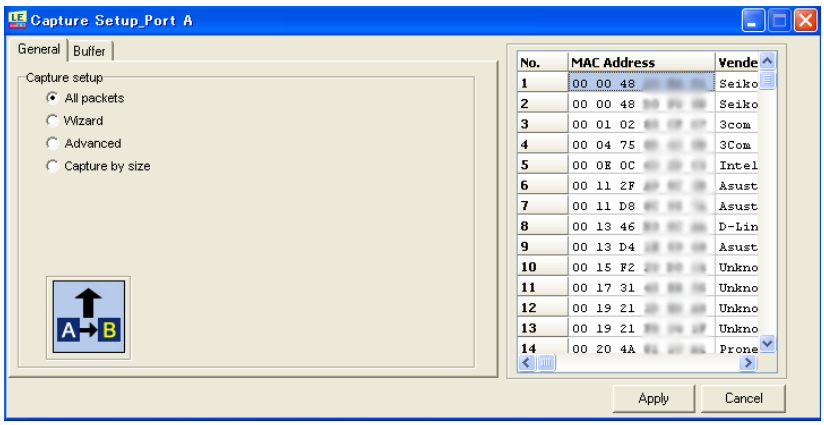
Amount Counter: TX/RX Packets/Bytes. Broadcast/Multicast/Unicast Packets/Bytes. Pause Packet. Packet with VLAN Tag. Sequential/TCP Checksum/ IP Checksum/CRC/Alignment/Dribble Error. RUNT. Oversize. Fragment. Jabber. Lower/Upper Bound Counter. Size Distribution Counter. ARP Request/Reply. ICMP Request/Reply.

6.3 Capture Function (TAP Mode)

With the TAP mode, you may select capturing in the “Capture setup.”

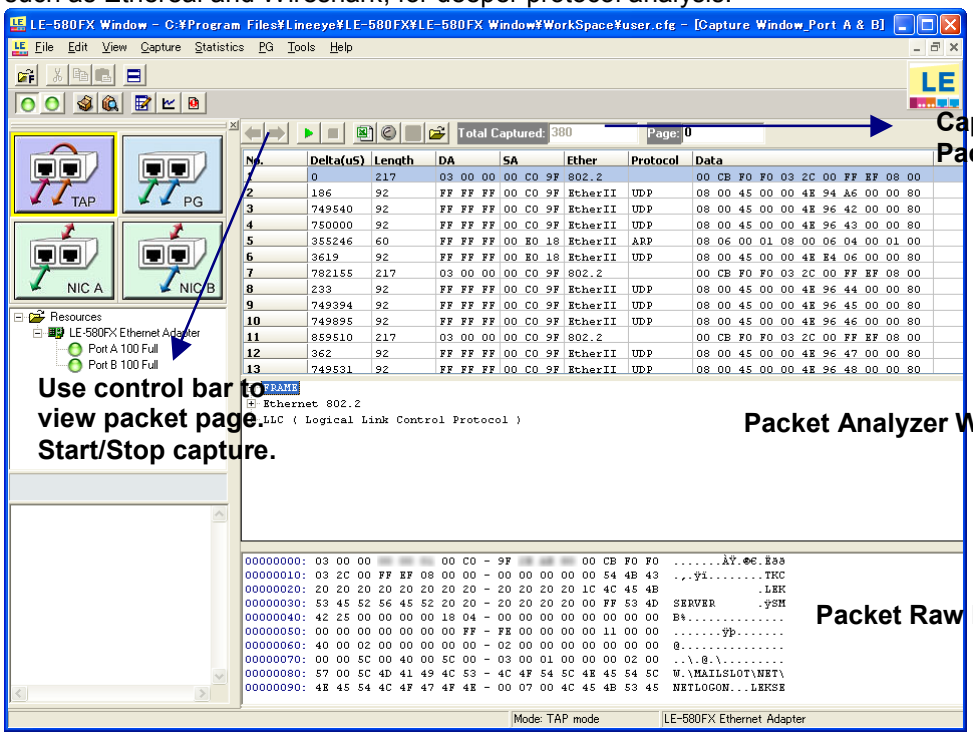
<Example of setting>
Step 1: Select TAP mode.

Step 2: Capture Setup. Select Capture => Capture Setup => Port A (Port A => Port B). Choose capture type and apply.



Capture Setup Windows

Step 3: Select Capture => Capture Window to pop up the Capture window. Click Start button(green arrow) to start capturing. Packets meet the capture type will be forwarded to host PC. LE-580FX is a hardware based filter, so packets do not meet the filter condition will not be forwarded to host. After stopping capture, click the Stop button to show the captured packet information in the Capture window. You may export the captured file to a 3rd party sniff software, such as Ethereal and Wireshark, for deeper protocol analysis.



Capture Windows

7. LE-580FX with 3rd Party Sniff Software

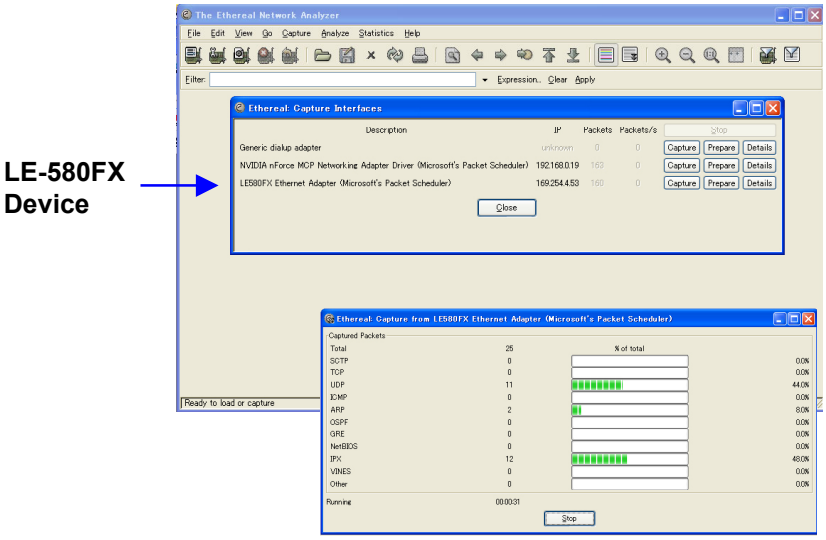
When connecting LE-580FX in TAP mode, it will be act as a “TAP” device to forward the link traffic to host PC. The following procedure shows how to control a 3rd party sniff software “Ethereal” using LE-580FX to capture traffic.

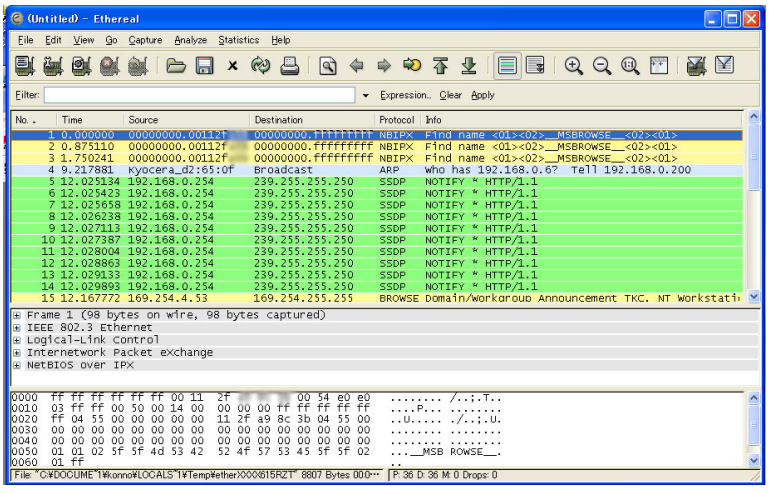
<Important>
1. LINEEYE has tested that LE-580FX works at WinPcap Ver4.0.2. LINEEYE does not guarantee to use LE-580FX at other version of WinPcap. Please notice this when you install Ethereal or Wireshark.

<Use Ethereal>
Step 1: Invoke Ethereal. Select Capture => Interfaces. You will find the LE-580FX device in the “Ethereal Capture Interfaces” window.

Step 2: Click “Capture” button to start capturing traffic.

Step 3: Stop capturing traffic to see detailed packet analysis.




(Untitled) - Ethereal
File Edit View Go Capture Analyze Statistics Help
Filter:
Expression... Clear Apply
No. Time Source Destination Protocol Info
1 0.000000 00000000.00112f 00000000.ffffffff NBIPX Find name <01><02>__MSBROWSE__<02><01>
2 0.875110 00000000.00112f 00000000.ffffffff NBIPX Find name <01><02>__MSBROWSE__<02><01>
3 1.750241 00000000.00112f 00000000.ffffffff NBIPX Find name <01><02>__MSBROWSE__<02><01>
4 9.217881 Kyocera_d2:65:0f Broadcast ARP Who has 192.168.0.6? Tell 192.168.0.200
5 12.025134 192.168.0.254 239.255.255.250 SSDP NOTIFY * HTTP/1.1
6 12.025423 192.168.0.254 239.255.255.250 SSDP NOTIFY * HTTP/1.1
7 12.025658 192.168.0.254 239.255.255.250 SSDP NOTIFY * HTTP/1.1
8 12.026238 192.168.0.254 239.255.255.250 SSDP NOTIFY * HTTP/1.1
9 12.027113 192.168.0.254 239.255.255.250 SSDP NOTIFY * HTTP/1.1
10 12.027387 192.168.0.254 239.255.255.250 SSDP NOTIFY * HTTP/1.1
11 12.028004 192.168.0.254 239.255.255.250 SSDP NOTIFY * HTTP/1.1
12 12.028863 192.168.0.254 239.255.255.250 SSDP NOTIFY * HTTP/1.1
13 12.029133 192.168.0.254 239.255.255.250 SSDP NOTIFY * HTTP/1.1
14 12.029893 192.168.0.254 239.255.255.250 SSDP NOTIFY * HTTP/1.1
15 12.167772 169.254.4.53 169.254.255.255 BROWSE Domain/Workgroup Announcement TKC, NT Workstati
Frame 1 (98 bytes on wire, 98 bytes captured)
IEEE 802.3 Ethernet
Logical-Link Control
Internetwork Packet eXchange
NetBIOS over IPX
__MSB ROWSE__.

Ethereal Capture Window

8. Warranty and Repair

Warranty

Within a period of 12 months from the date of shipment, LINEEYE warrants that your purchased products (excepting consumable parts such as the batteries and software) are free of charge from any defects in material and workmanship, only when the products are operated in accordance with procedures described in the documents supplied by LINEEYE. If the defects exist during the Warranty period, please send back the products to LINEEYE distributors or LINEEYE office. LINEEYE will repair or exchange them at no charge. In this case, the shipping charge will be at your own expense.

The foregoing warranties are the sole warranties given by LINEEYE. Above warranties shall not be applied to the products that have been modified, repaired or altered (excepting by LINEEYE employees) or that have been subjected to unusual physical or electrical stress, misuses, abuse, negligence or accidents.

LINEEYE disclaims all other warranties including the warranties of merchantability fitness for some particular purposes and noninfringement of third party right. LINEEYE cannot promise that the software is error-free or will operate without any interruption.

When you have some errors while operating the software, please refer to the contents and modified programs shown on our web page (http://www.lineeye.com).

Repair

LINEEYE will repair the products at your own expense.

For malfunction, please contact the LINEEYE distributors where you purchased at. Or, contact us directly.

If your product needs to be repaired, please read details about a repair on our web page and ask LINEEYE for a repair.

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